

**PATENT****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: PATRICK L. IVERSEN

APPLICATION No.: 10/567,470

FILED: February 2, 2006

FOR: SENSE ANTIVIRAL COMPOUND AND METHOD FOR
TREATING SSRNA VIRAL INFECTION

EXAMINER: TO BE ASSIGNED

ART UNIT: 1635

CONF. No: 4986

**Information Disclosure Statement Within Three Months of
Application Filing or Before First Action – 37 C.F.R. § 1.97(b)**Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Timing of Submission

This information disclosure is being filed within three months of the filing date of this application or date of entry into the National Stage of an International Application or before the mailing date of a first Office Action on the merits or before the mailing date of a first Office Action on the merits after the filing of a Request for Continued Examination under 37 CFR §1.114, whichever occurs last (37 CFR 1.97(b)(4)). The references listed on the enclosed Form PTO-1449 (modified) may be material to the examination of this application; the Examiner is requested to make them of record in the application.

Cited Information

- ☒ Copies of references 1-13 are issued patent(s) and published application(s) and are not included (see C.F.R. § 1.98(a)(2)(i)).
- ☒ Copies of references 14-40 are enclosed.

Effect of Information Disclosure Statement (37 C.F.R. § 1.97(h))

This Information Disclosure Statement is not to be construed as a representation that: (i) a search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the cited information is, or is considered to be, material to patentability. In addition, applicant does not admit that any enclosed item of information constitutes prior art to the subject invention and

specifically reserves the right to demonstrate that any such reference is not prior art.

Fee Payment

No fees are believed due because this Information Disclosure Statement is being filed before the mailing date of the first Office Action. However, should the Commissioner determine that fees are due in order for this Information Disclosure Statement to be considered, the Commissioner is hereby authorized to charge such fees to Deposit Account No. 50-2207.

Patent Term Adjustment (37 C.F.R. § 1.704(d))

- ☐ The undersigned states that each item of information submitted herewith was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this statement. 37 C.F.R. § 1.704(d).

Respectfully submitted,
Perkins Coie LLP

Date: November 30, 2006

Gina C. Freschi
Gina C. Freschi
Registration No. 52,062

Correspondence Address:

Customer No. 22918
Perkins Coie LLP
P.O. Box 2168
Menlo Park, California 94026
(650) 838-4300

INFORMATION DISCLOSURE STATEMENT BY APPLICANT Form PTO-1449 (Modified) (Use several sheets if necessary)			COMPLETE IF KNOWN		
			Application Number	10/567,470	
			Confirmation Number	4986	
			Filing Date	August 6, 2004	
			First Named Inventor	Patrick L. Iversen	
			Group Art Unit	1635	
Examiner Name	To be Assigned				
Attorney Docket No.	50450-8055.US00				
Sheet	1	of	3		

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	U.S. Patent or Application		Name of Patentee or Inventor of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		NUMBER	Kind Code (if known)			
	1.	5,185,444		Summerton <i>et al.</i>	2/93	
	2.	6,060,456		Arnold <i>et al.</i>	5/00	
	3.	6,133,246		McKay <i>et al.</i> ,	10/00	
	4.	6,228,579		Zyskind <i>et al.</i>	5/01	
	5.	6,239,265		Cook	5/01	
	6.	6,365,351		Iversen	4/02	
	7.	6,495,663		Rothbard	12/02	
	8.	6,677,153		Iversen	1/04	
	9.	6,784,291		Iversen <i>et al.</i>	8/04	
	10.	6,828,105		Stein <i>et al.</i>	12/04	
	11.	6,841,542		Bartelmez <i>et al.</i>	1/05	
	12.	7,049,431		Iversen <i>et al.</i>	5/06	
	13.	7,094,765		Iversen <i>et al.</i>	8/06	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.	Foreign Patent or Application			Name of Patentee or Applicant of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	NUMBER	Kind Code (if known)				

OTHER PRIOR ART-NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume issue number(s), publisher, city and/or country where published.	T
	14.	Agrawal, S., S. H. Mayrand, <i>et al.</i> (1990). "Site-specific excision from RNA by RNase H and mixed-phosphate-backbone oligodeoxynucleotides." <i>Proc Natl Acad Sci U S A</i> , 87(4): 1401-5.	
	15.	Bailey, C. P., J. M. Dagle <i>et al.</i> , "Cationic oligonucleotides can mediate specific inhibition of gene expression in <i>Xenopus</i> oocytes." <i>Nucleic Acids Res</i> , 26(21): 4860-7 (1998).	
	16.	Banerjee, R. and A. Dasgupta (2001). "Interaction of picornavirus 2C polypeptide with the viral negative-strand RNA." <i>J Gen Virol</i> 82(Pt 11): 2621-7.	

EXAMINER	DATE CONSIDERED
*EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance <u>and</u> not considered. Include copy of this form with next communication to application(s).	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT Form PTO-1449 (Modified) (Use several sheets if necessary)				COMPLETE IF KNOWN	
				Application Number	10/567,470
				Confirmation Number	4986
				Filing Date	August 6, 2004
				First Named Inventor	Patrick L. Iversen
				Group Art Unit	1635
				Examiner Name	To be Assigned
Sheet	2	of	3	Attorney Docket No.	50450-8055.US00

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.	Foreign Patent or Application		Name of Patentee or Applicant of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	NUMBER Kind Code (if known)				
	17.		Banerjee, R. and A. Dasgupta (2001). "Specific interaction of hepatitis C virus protease/helicase NS3 with the 3'-terminal sequences of viral positive- and negative-strand RNA." <i>J Virol</i> 75(4): 1708-21.				
	18.		Banerjee, R., A. Echeverri, <i>et al.</i> (1997). "Poliovirus-encoded 2C polypeptide specifically binds to the 3'-terminal sequences of viral negative-strand RNA." <i>J Virol</i> 71(12): 9570-8.				
	19.		Banerjee, R., W. Tsai, <i>et al.</i> (2001). "Interaction of poliovirus-encoded 2C/2BC polypeptides with the 3' terminus negative-strand cloverleaf requires an intact stem-loop b." <i>Virology</i> , 280(1): 41-51.				
	20.		Barawkar, D. A. and T. C. Bruice, "Synthesis, biophysical properties, and nuclease resistance properties of mixed backbone oligodeoxynucleotides containing cationic internucleoside guanidinium linkages: deoxynucleic guanine/DNA chimeras." <i>Proc Natl Acad Sci U S A</i> , 95(19): 11047-52. (1998).				
	21.		Blommers, M. J., U. Pieses, <i>et al.</i> (1994). "An approach to the structure determination of nucleic acid analogues hybridized to RNA. NMR studies of a duplex between 2'-OMe RNA and an oligonucleotide containing a single amide backbone modification." <i>Nucleic Acids Res</i> 22(20): 4187-94.				
	22.		Gait, M. J., A. S. Jones, <i>et al.</i> (1974). "Synthetic-analogues of polynucleotides XII. Synthesis of thymidine derivatives containing an oxyacetamido- or an oxyformamido-linkage instead of a phosphodiester group." <i>J Chem Soc [Perkin 1]</i> 0(14): 1684-6.				
	23.		Lesnikowski, Z. J., M. Jaworska, <i>et al.</i> (1990). "Octa(thymidine methanephosphonates) of partially defined stereochemistry: synthesis and effect of chirality at phosphorus on binding to pentadecadeoxyriboadenylic acid." <i>Nucleic Acids Res.</i> , 18(8): 2109-15.				
	24.		Linkletter, B. A. and Bruice, T.C., "Solid-phase synthesis of positively charged deoxynucleic guanine (DNG) modified oligonucleotides containing neutral urea linkages: Effect of charge deletions on binding and fidelity." <i>Bioorg. Med. Chem.</i> 8(11): 1893-1901 (2000).				
	25.		Mertes, M. P. and E. A. Coats (1969). "Synthesis of carbonate analogs of dinucleosides. 3'-Thymidinyl 5'-thymidinyl carbonate, 3'-thymidinyl 5'-(5-fluoro-2'-deoxyuridinyl) carbonate, and 3'-(5-fluoro-2'-deoxyuridinyl) 5'-thymidinyl carbonate." <i>J Med Chem.</i> , 12(1): 154-7.				

EXAMINER	DATE CONSIDERED
*EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance <u>and</u> not considered. Include copy of this form with next communication to application(s).	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT Form PTO-1449 (Modified) (Use several sheets if necessary)				COMPLETE IF KNOWN	
				Application Number	10/567,470
				Confirmation Number	4986
				Filing Date	August 6, 2004
				First Named Inventor	Patrick L. Iversen
				Group Art Unit	1635
				Examiner Name	To be Assigned
Sheet	3	of	3	Attorney Docket No.	50450-8055.US00

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.	Foreign Patent or Application		Name of Patentee or Applicant of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	NUMBER Kind Code (if known)				
	26.		Micklefield, J., "Backbone modification of nucleic acids: synthesis, structure and therapeutic applications." <i>Curr Med Chem</i> , 8(10):1157-79 (2001).				
	27.		Moulton, H. M., M. H. Nelson, et al. (2004). "Cellular uptake of antisense morpholino oligomers conjugated to arginine-rich peptides." <i>Bioconjug Chem.</i> , 15(2): 290-9.				
	28.		Nelson, M. H., D. A. Stein, et al. (2005). "Arginine-rich peptide conjugation to morpholino oligomers: effects on antisense activity and specificity." <i>Bioconjug Chem.</i> , 16(4): 959-66.				
	29.		O'Ryan, M. (1992). <i>Clinical Virology Manual</i> . S. Spector and G. Lancz. New York, Elsevier Science: 361-396.				
	30.		Pardigon, N. and J. H. Strauss (1992). "Cellular proteins bind to the 3' end of Sindbis virus minus-strand RNA." <i>J Virol.</i> , 66(2): 1007-15.				
	31.		Pardigon, N., E. Lenches, et al. (1993). "Multiple binding sites for cellular proteins in the 3' end of Sindbis alphavirus minus-sense RNA." <i>J Virol.</i> , 67(8): 5003-11.				
	32.		Paul, A. V. (2002). Possible unifying mechanism of picornavirus genome replication. <i>Molecular Biology of Picornaviruses</i> . B. L. Semler and E. Wimmer. Washington, DC, ASM Press:227-246.				
	33.		Roehl, H. H. and B. L. Semler (1995). "Poliovirus infection enhances the formation of two ribonucleoprotein complexes at the 3' end of viral negative-strand RNA." <i>J Virol.</i> , 69(5):2954-61.				
	34.		Roehl, H. H., T. B. Parsley, et al. (1997). "Processing of a cellular polypeptide by 3CD proteinase is required for poliovirus ribonucleoprotein complex formation." <i>J Virol.</i> 71(1):578-85.				
	35.		Smith, A. W., D. E. Skilling, et al. (1998). "Calicivirus emergence from ocean reservoirs: zoonotic and interspecies movements." <i>Emerg Infect Dis.</i> , 4(1):13-20.				
	36.		Summerton et al., <i>Antisense & Nucleic Acid Drug Development</i> , 7:63-70 (1997).				
	37.		Summerton et al., <i>Biochim et. Biophys. ACTA</i> , 1489:141-158 (1999).				
	38.		Summerton, J. and D. Weller (1997). "Morpholino antisense oligomers: design, preparation, and properties." <i>Antisense Nucleic Acid Drug Dev.</i> , 7(3):187-95.				
	39.		Wu, G. Y. and C. H. Wu (1987). "Receptor-mediated in vitro gene transformation by a soluble DNA carrier system." <i>J Biol Chem.</i> , 262(10): 4429-32.				
	40.		Xu, W. Y. (1991). "Viral haemorrhagic disease of rabbits in the People's Republic of China: epidemiology and virus characterisation." <i>Rev Sci Tech</i> , 10(2): 393-408.				

EXAMINER	DATE CONSIDERED
*EXAMINER: Initial if reference considered, whether or not criteria is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to application(s).	